

# **The IntensAfrica Initiative**

**Research partnership between Europe and Africa on  
sustainable agriculture intensification**

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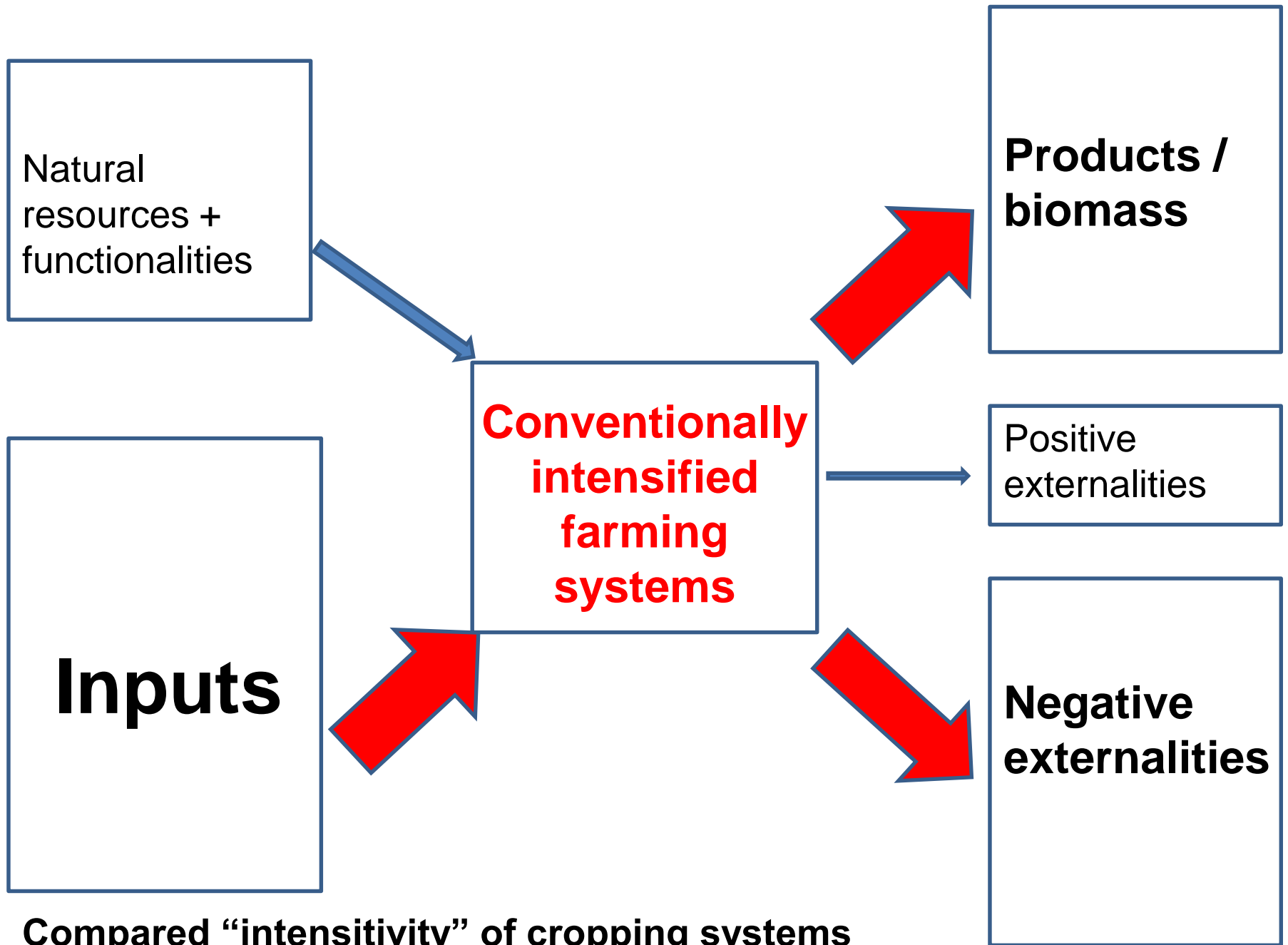
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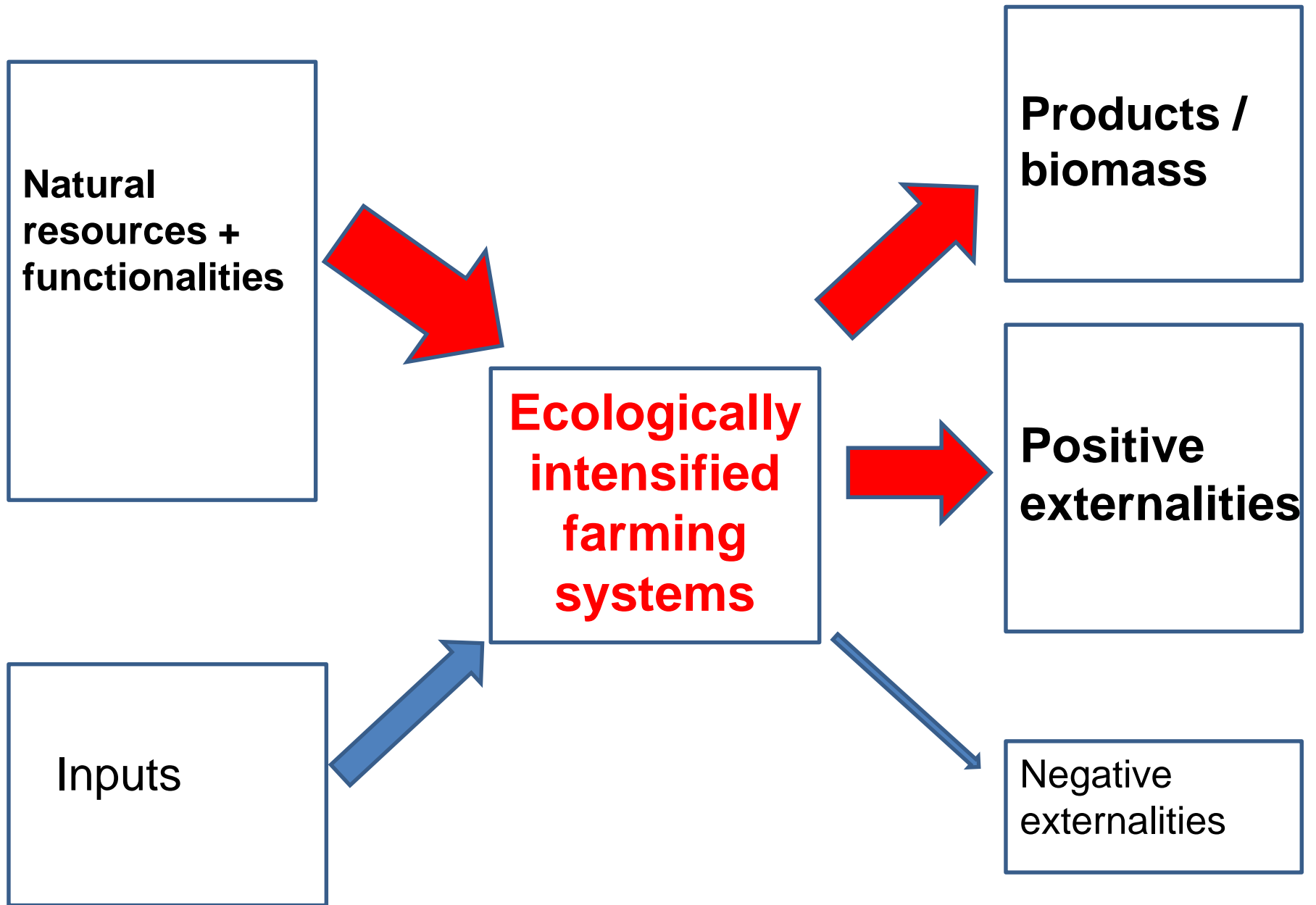
1. New approach of agriculture performance in the light of sustainability
2. Challenges of agriculture transformation in Sub-Saharan Africa
3. New pathways of intensification in a huge diversity of contexts
4. New paradigm and needs for scientific research
5. The IntensAfrica Initiative

# 1. A radically new approach of agriculture performance in the light of sustainability

- Conventional intensification reduced crops to a uniform and synchronous canopy, ultimately consisting of a single genotype of some major species.
- Natural and cultivated ecosystems are not separated any more: agriculture represents 50% of the work force in the world, and farmers are “managing” 25% of the planet landmass.
- Urgency to finding new ways of intensification, but with a radical new vision of what performance means, (production + environmental + social services) evaluated at different scales of time and space.



Compared “intensivity” of cropping systems



Compared “intensitivity” of cropping systems

## 2. Specific challenges of agriculture transformation in Sub-Saharan Africa

- Food and nutrition security, poverty reduction, catalysis of the economic development, natural resources management, rural territories management, etc.
- After decades of being despised, agriculture is back on the development and political agenda (Caadp)
- In SSA today, 11 out of the 17 Millions people entering the labor market every year live in rural areas. Rural areas should continue to lead in the labor force increase till the early 2030s. Between now and 2025, SSA's economies will have to incorporate 330 Millions youth (195 in rural and 135 in urban areas).

# Inclusive and sustainable intensification pathways

- African farmers will have to engage a significant increase of land and labor productivity, being at the same time, in a situation of often extreme poverty, face growing climatic constraints and opening markets.
- This intensification could follow various pathways but it will have to be sustainable and labor intensive
- The intensification pathways will shape agrarian system. The model of “modernization” of agriculture presents a risk of massive eviction from rural areas (strong pathway dependency)
- Smallholders have comparative advantages: they can be competitive and lead this transformation with support of public investments and policies

### 3. New pathways of intensification in a huge diversity of contexts

Ecological intensification is mainly driven by better agrobiodiversity management. To make the best use of natural resources, we need to maximize the biomass production, by intercepting throughout the year the most of solar radiation, CO<sub>2</sub>, N, ... by:

- Optimizing plant functional biodiversity at different scales and revisiting plant breeding to adapt plants to complex association;
- Optimizing functional biodiversity at different scales regulating bio-agressors;
- Amplifying biogeochemical cycles in the soil, recycling the nutrients from deep profiles and increasing microbial activities.



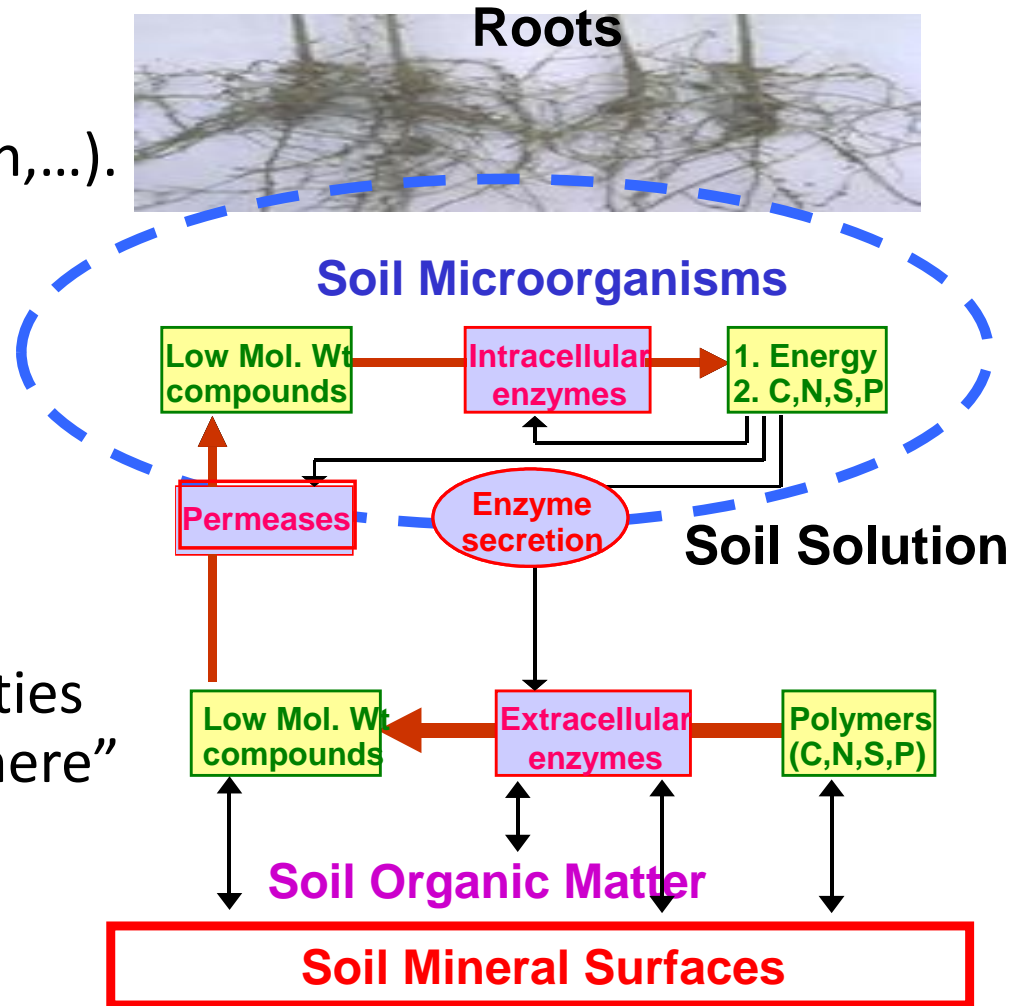
# Optimizing plant functional biodiversity means complexification of cropping systems

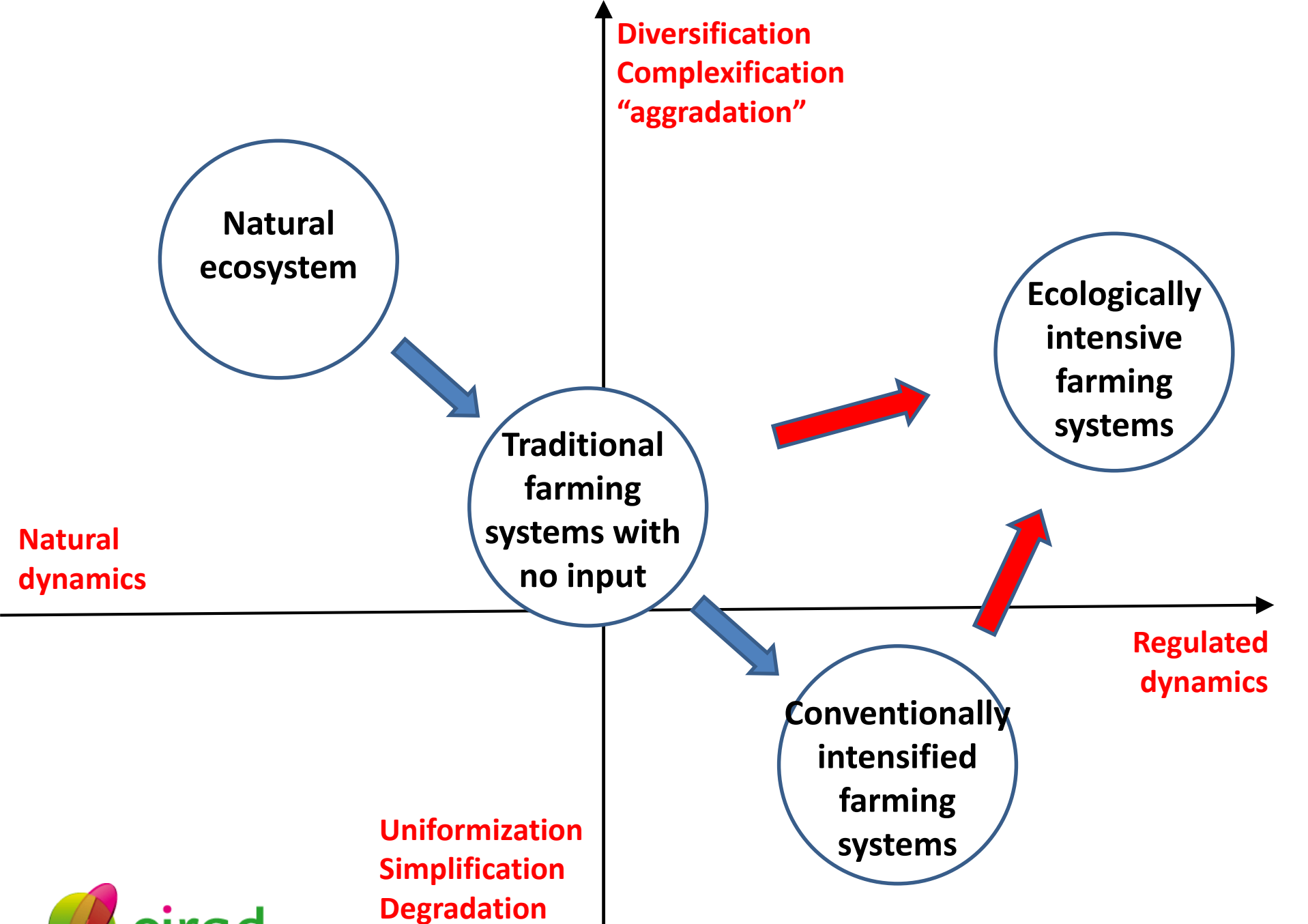


Increased number of cultivated species

# Amplifying biogeochemical cycles

- By minimizing the loss of nutrients (leaching, erosion,...).
- By recycling the nutrients from deep soil profiles (deep rooting species, second crop at the end of the rainy season,...).
- By increasing microbial activities and stimulating the “rhizosphere” effects (biogenic structures).







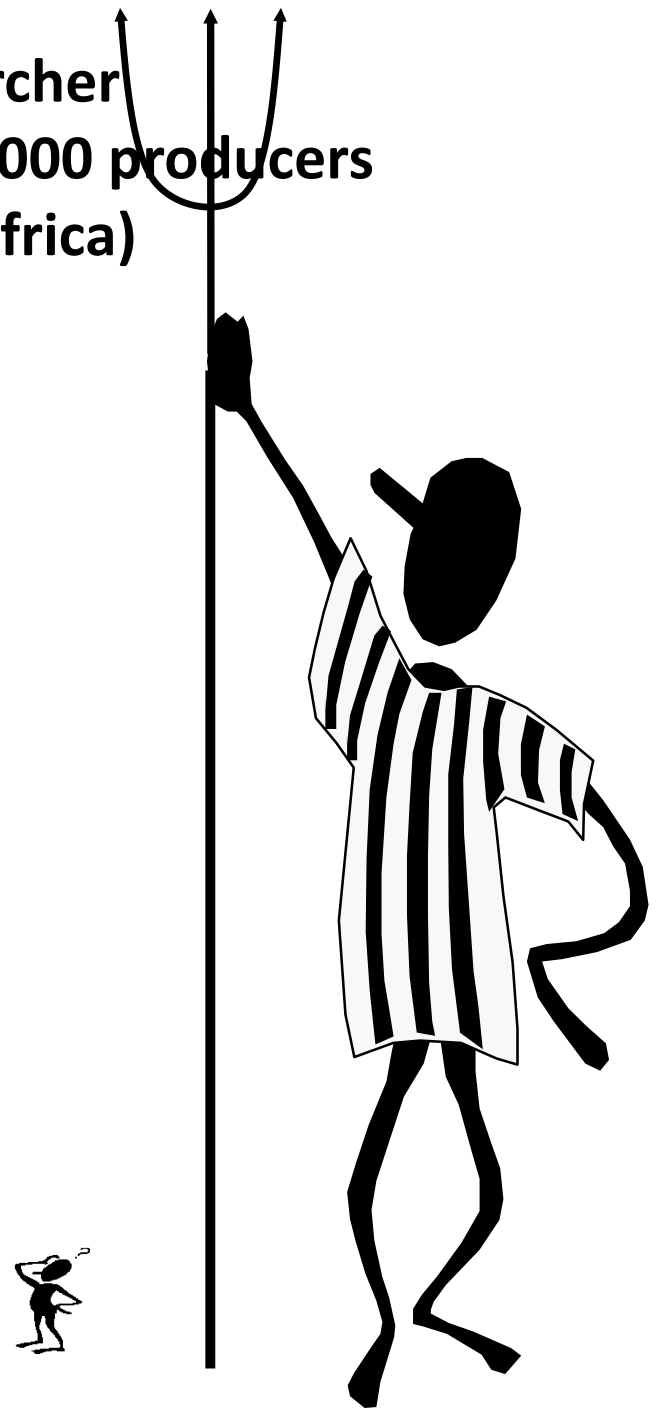
## 4. New paradigm and needs for scientific research

- The importance of local context: shift from “ready-to-use” to “custom-made” cropping systems put the producers at the centre of local innovation systems, to combine technologies and traditional knowledge.
- No transformation will happen naturally: there is a need for strong sectorial policies favouring sustainable intensification (access to market, payment of environmental services, infrastructures, etc.)
- A complete new role of the scientists (with low ratio/producer)

**1 researcher  
for 100 producers  
(France)**



**1 researcher  
for 100.000 producers  
(West Africa)**



## 4. New paradigm and needs for scientific research

- Necessity to reinforce the basic knowledge of functional ecology, constantly going from generic to contextual and return.
- the breeders must re-think their jobs and build new kind of varieties (multicrop breeding, participatory breeding, varieties-to-refine, etc.): the end of “biotech golden era” ?
- the agronomists will have to deal with management of complex cropping systems, combination of many species, cycles successions and practices, and cope with multi-criteria performance: the dawn of “agronomy golden era”?
- every scientists will have to take into consideration local knowledge and remain in strong personal interactions with agricultural realities

## 5. The IntensAfrica Initiative: the background

- Food and nutrition security high on research policy agenda EU and AU
- Scattered European AR4D (lack of coherence and visibility) *versus* development of Joint Programming at European level
- Pan African Ag. Policy (CAADP) + CAP new phase, increasing linkages between AR and AR4D and political dialogue between the 2 continents
- In Sept 2012 institutions from 13 European countries (BE, CH, CZ, DK, FR, IT, IR, UK, HU, NL, PT, SP, SW) confirm their interest to explore an ambitious initiative on “intensification pathways”
- Interest of NEPAD, FARA, SROs and NARS confirmed

# 5. The IntensAfrica Initiative: scope and objectives

The global scope is sustainable intensification pathways for food security. The ambitions are:

- To go beyond controversies between two intensification systems, recognizing that Ag scientific research can be affected by path dependency
- To explore the diversity of ways of intensification, linked to the diversity of contexts and document them in terms of sustainability at different scales
- To promote research questions at different scale and to develop methodologies to integrate their analysis and evaluate trade-offs



**At the local level for producers and their organizations:** How do the intensification pathways developed increase production and enhance the livelihoods of the farmer families? How they will improve farmers' capacity to cope with risks and uncertainty? How will this intensification process affect farms economic viability, technical or financial dependency, gender relations, specialization and vulnerability? How this process could trigger growth of the value chain? ...

**At the level of local communities and small regions:** How can different intensification pathways be targeted to local development dynamics and employment in agriculture? How do the upstream and downstream sectors influence and respond to different modalities of intensification? How can the role of the private sector be enhanced within the sustainable intensification pathways to be developed? ...

**At national or regional level:** How can intensification modalities influence public policies, as regard to regulations, codes of investment, land tenure laws, responsible investments, sector development strategies, integration of development policies with health, energy, environment, food security, etc.? What kind of governance is favourable to sustainable intensification? How can the needs of the people across the food chain (production, harvesting, processing, marketing and consumption) and across the life span and diversity (gender, ethnicity, income etc.) be addressed by policy making? ...

## 5. The IntensAfrica Initiative: the approach

- Aligning existing research projects and launching new ones
- Strengthening scientific capacities of agriculture scientists and knowledge institutions, with priority to Nars
- Enabling vibrant scientific communities and partnerships between Europe and Africa
- Nurturing innovation at various levels
- Feeding policy-science interfaces

# IntensAfrica: what's new ?

- The approach :
  - System research on agriculture and food systems at different scales
  - Recognise multiple criteria for assessing performance
  - Integrate the value-chain dimension and the geographical dimension
  - Contextualised local innovation, policy advice, generic knowledge
  - Strong methodological challenge
- European ARD activities better aligned, with greater coherence, enhanced synergies and international visibility.
- Focus on Research and Innovation initiative, with added value for both Europe and Africa, complementing AR4D programmes as well as European JPIs (like JPI FACCE)
- Proposal for a CSA in Horizon 2020 Work programme, before launching full scale proposal (JPI or Article 185)

Thanks for your attention!

